Work Order ID 88807

1iigust=03=12 1:49:03 PM

Packaging

88807

Item ID: D212-664-201 Accept *N900040100* Setup Start Nevision ID: Crosstube Aft Item Name: **Start Date:** 03/08/2012 Start Qty: 1:00 Cust Item ID: Req'd Qty: 1.00 **Required Date: 24/08/2012 Customer:** Reference: Run Process Plan: MUJ Date: 17/08/03 Tooling: Approvals: SPC (Y/N): Date: Sequence ID/ Operation * Tool ID Tool # Plan Accept Reject Reject Work Center ID Description Run Hours Number Stamp **Draw Nbr Revision Nbr** D212-664-241 Rev D (DEO) DSI9563 100 DOCUMENT CONTROL *100* Memo Photocopy bluefile and create labels as per PPP D212-664-201 Document Control 110 Pick Kit Packaging *110* Packaging Memo

NCR:	Yes	/	No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA Date: 12/11/02

									QA Closed:	(l Date:	c _n	1.
Work Orde	r:	388	01		DISPOSITION			AGAINST DE	PARTMENT	PROCESS		
	D210			201	Rework Scrap Use-as-is X Work Order Update		Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	Pro	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other	-
Root				Descri	ption of work order update	Initial	Act	ion	Sign &			
Cause	Date	Step	Qty	(or Non-conformance	Chief Eng	Descr	iption	Date	Verification	QC Inspector	
Doc/Data Equip/Tooling Operator	12/10/17	120)	CRUSI 15 OVE	HING AFTER BENDING	DAS 12 289	Acceptable p	per affeched	DAG 12	(OAS)	QAS.	
Material Setup					•,	12/14/17	25.		12/10/17	Molia	ratioliz-	į
Other Process	7		-7:			*.					15/10/17	
Supplier Training		, [1				·		·				
Unapproved												
					F	AULT CATE	GORY					
Landir	ng Gear				General	<u> </u>	ছ	·	_	<u></u>	_	
	Bending				Bend	Grain	•		Ovalized		Pressure/Forced	
	Centre No	ot Conce	ntric to	o/s	BOM/Route	Hardwa	are	<u></u>	Over/Under	tolerance	Temperature/Cure	
	Gracks				Broken/Damaged	Inspect	ion Incomplete 、	١	Part Incorre	ct	Weld	
	Crushed/	Crimped	-		Burrs	Instruc	tions Incomplete/L	Jnclear	Part Lost/M	issing	Wrong Stock Pulled	ţ
	Cuffs Contamination					Mainte	enance		Part Moved			
	Heat Trea	it			Countersink	Mislab	eled		Positioned V	Vrong	-	
Ĺ	Inspection Strip in Tube Cut Too Short					Misrea	d		Power Loss/	Surge	Other	
	Ripples in	Bend			Drill Holes	Offset		*		·······		
	Torque Waves in Extrusion Drawing						Out of Calibration					
	Turning S	equence			Finish	Out of	Sequence					
ſ	Mayo /Tw	ict in Tul	ha	1 "	Eolio	I Touteid	Dimonsions					

D212-664-201 Accept *N900040100* Setup Start > Revision ID: *Crosstube Aft Item Name: Start Qty: 1.00 **Start Date:** 03/08/2012 Cust Item ID: Required Date: 24/08/2012 Req'd Qty: 1.00 **Customer:** Reference: Run Start Date: Tooling: Approvals: Date: Date: SPC (Y/N): Date: Sequence ID/ Operation Set Up/ Tool ID Tool # Reject Plan Accept Reject Insp. Work Center ID Description Run Hours Qty Qty Code Number Stamp 120 0.00 BENDING MACHINE - CROSSTUBES *120* 12-10-16 CNC Bend 2 0.00 Memo CNC Alpha 160 Bender Bend tube as per Dwg D212-664-241 using CNC bender program 212-

130

QC15- Crosstube Dimensional Check

0.00

130

QC

Memo

Quality Control

			DQA
NCR:	Yes / No	WORK ORDER NON-CONFORMANCE / UPDATE	in the second

									QA Closed:	Date:	
Work Orde	Rework Skid-tube Crosstube Water Jet Engineering Scrap Machining Small Fab Prod. Eng. Coor Quality Use-as-is Thermoforming Finishing Rec/Store/Packaging Other										
Part No	0.				Scrap Use-as-is	4 1	Machining	Small Fab Finishing		Quality	
Root				Descri	ption of work order update	Initial	Ac.	tion	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data Equip/Tooling					÷						
Operator	_										
Material											
Setup											
Other Process											
Supplier	-					1					
Training											
Unapproved											
	1		<u> </u>		F	AULT CATE	GORY				
Landin	g Gear				General	C/I					
					Bend	Grain			Ovalized		Pressure/Forced
	Centre No	ot Concer	ntric to (o/s	BOM/Route	Hardw	are	*	Over/Under	tolerance	Temperature/Cure
	Cracks				Broken/Damaged	Inspec	tion Incomplete		Part Incorre	ct	Weld
	Crushed/	Crimped.			Burrs	Instruc	tions Incomplete/	Unclear	Part Lost/Mi	issing	Wrong Stock Pulled
	Cuffs				Contamination	Maint	enance		Part Moved		
	Heat Trea	it			Countersink	Mislab	eled		Positioned V	Vrong	_
	Inspection	n Strip in	Tube		Cut Too Short	Misrea	d		Power Loss/	Surge	Other
	Ripples in	Bend			Drill Holes	Offset					
	Torque W	aves in E	xtrusion	, L	Drawing	\vdash	Calibration .				
	Turning S	equence			Finish	Out of	Sequence				
	Wave/Tw	ist in Tub	oe -		Folio	Outsid	e Dimensions				

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

August-03-12 1:49:03 PM

Item ID: Revision ID:	D212-664-2	01		Accept	*N900	04010	N *	Setup Start	*NS1*
Item Name:	Crosstube Aft		* ;					Stop	*NS2*
Start Date: Required Date: Reference:	03/08/2012 24/08/2012	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*	4.0	Cust Item I Customer:	D:			
Approvals:	Process Pla	an:	Date:	Tooling:	Da	ite:	***	Run Start	*NR1*
	QC:		Date:	SPC (Y/N):	Da	ite:	٠.	Stop	*NR2*
Sequence ID/ Work Center II	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool # Plan Code	Accept Qty	•	Reject Insp. Number Stamp
140 Crosstubes		Crosstubes Memo		0.00					
Crosstubes		DT8551, dri 2-Ream hole DT8550 & I to ensure ali	Il table DT8577 and locate to finish size in tube as por DT8551. Check dimensions gnment with saddle holes.	D212-664-241 using drill Ji tower holes #8 as per QSI(er Dwg D212-664-241 usin between holes, both sides of ting stylus as per Dwg D21	9010. g drill Jig on both cuffs,		MOJK	M 12	-1 ¹⁰ /16
				DLIND CROSSTUBE.*** mage within limits as per D		KM	12-1	10-16	
150 *150* QC Quality Control	10	QC5- Inspect part compl Memo ***WEAR	·	0.00 0.00 HANDLING CROSSTUB	16) r1/(0/()	*1			

	Water Jet Engineering Odd. Eng. Coor. Quality Ore/Packaging Other Supplier
Work Order: Rework Skid-tube Crosstube Part No Machining Small Fab Proc	Water Jet Engineering Od. Eng. Coor. Quality Other Supplier
Part No Scrap Machining Small Fab Prod	od. Eng. Coor. Quality ore/Packaging Other Supplier
NCR No Work Order Update Large Fab Composite	
Root Description of work order update Initial Action Sign &	
Cause Date Step Qty or Non-conformance Chief Eng Description Date	Verification QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved	
FAULT CATEGORY	
Landing Gear Bending Centre Not Concentric to O/S Cracks Broken/Damaged Crushed/Crimped. Cuffs Contamination Heat Treat Inspection Strip in Tube Ripples in Bend Torque Waves in Extrusion Bend Bend Bend Bend Bend Bend Bend Bend Bend BoM/Route Hardware Inspection Incomplete Instructions Incomplete/Unclear Instructions Incomplete/Unclear Part Lost/Mi Maintenance Mislabeled Mislabeled Positioned V Misread Offset Offset Out of Calibration	ect Weld Missing Wrong Stock Pulled Wrong

Out of Sequence

Outside Dimensions

Date:

DQA:

Turning Sequence

Wave/Twist in Tube

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Page 4

August-03-12 1:49:03 PM

Required Date: 24/08/2012

Item ID:

D212-664-201

Accept

N900040100

Setup Start

Revision ID:

Item Name: **Start Date:**

Crosstube Aft

Start Qty: 1.00 03/08/2012

Req'd Qty: 1.00

Date:

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

OC:

Date:

Tooling:

SPC (Y/N):

Date:

Date:

Run

Stop

Sequence ID/ **Work Center ID** Operation Description

Set Up/ Run Hours Tool ID

Tool# Plan Code

\$.

Accept **Qty**

Reject Qty

Reject Insp.

Number Stamp

160 *160*

HandFXtube

Memo

0.00

0.00

***WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE. ***

1- CLEAN CROSSTUBE WITH WASH'N WIPE

180

120

Hand Finishing Crosstubes

Outsource2

Memo

0.00

0.00

Outsource process - NDT

WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE.

Liquid Penetrant Inspection as per QSI 038

Memo

Outsource process - NDT per QSI038 4.1

LPI as per ASTM 1417 Level 2

Attach copy of NDT results to work order

190

190

Packaging

Receive & Inspect for Damage & Mat'l Certs

0.00

Packaging

0.00

Packaging

WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE.

Ensure copy of NDT results attached to work order.

									*		DQA:	Date:	
NCR:	Yes	/ No				WORK ORDER NON-	COI	VFORM	MANCE / UPDAT	ΓE			•
									A		QA Closed:	Date:	
						DISPOSITION				AGAINST DEI	PARTMENT	/PROCESS	
Work Ord	er:						7						1
_						Rework			}	rosstube		Water Jet	Engineering
Part	No.					Scrap	-		Ŭ ⊢	Small Fab		d. Eng. Coor.	Quality
NGD						Use-as-is	-		~ ~	Finishing	Rec/Stoi	re/Packaging	Other
NCR	NO.					Work Order Update	_		Large Fab Co	omposite		Supplier	
Root					Descri	ption of work order update		nitial	Action		Sign &		
Cause		Date	Step	Qty		or Non-conformance	Ch	ief Eng	Description	on	Date	Verification	QC Inspector
Doc/Data													
Equip/Tooling													t
Operator													
Material													
Setup													ļ
Other						•							
Process													
Supplier													
Training	L								÷				
Unapproved													
			·····				AUI	T CATE	GORY				
Land	ng (3				General		1		_	1	_	7
		Bending				Bend		Grain		<u> </u>	Ovalized		Pressure/Forced
	L	Centre No	ot Conce	ntric to	o/s	BOM/Route		Hardwa		 	Over/Under	<u> </u>	Temperature/Cure
	<u></u>	Cracks			<u> </u>	Broken/Damaged		4	on Incomplete		Part Incorre	<u> </u>	Weld
	<u>_</u>	Crushed/	Crimped.		<u></u>	Burrs		4	ions Incomplete/Uncle	ear	Part Lost/M		Wrong Stock Pulled
		Cuffs				Contamination	_	Mainte			Part Moved		
		Heat Trea	it			Countersink	<u></u>	Mislabe	eled		Positioned \	Wrong	7
		Inspection	n Strip in	Tube		Cut Too Short		Misread	d		Power Loss/	'Surge	Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

August-03-12 1:49:03 PM

Item ID: Revision ID:	D212-664-20	01		Accept	*N900	<u> </u>	1100)*	Setup Star	*N	S1*
Item Name:	Crosstube Aft								Stop	*N	S2*
Start Date:	03/08/2012	Start Qty: 1.00	*1*		Cust Item	ı ID:					
Required Date	e: 24/08/2012	Req'd Qty: 1.00	*1*		Customer						
Reference:			•								
Approvals:	Process Pla	n:	Date:	Tooling:		Date:			Run Star	*N	R1*
						Date:	1		Stop	*N	R2*
Sequence ID/ Work Center	ID	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
200		QC5- Inspect part compl	eteness to step on W/O		• •						•
200				(N.S.						
QC		Memo		0.00	17/10/0	0					
Quality Control		***WEAR	LATEX GLOVES WH	EN HANDLING CROSSTU	BE.***						
		Inspect for d	amage & ensure results	s are as per Dwg D212-664-2	241						
204		Crosstubes Chemical Co	nversion	0.00							
204								j	d	· d	ΔΟ
HandFXtube		Memo		0.00							12-10-18
Hand Finishing Cr	rosstubes	***WEAR	LATEX GLOVES WH	EN HANDLING CROSSTU	BE.***						
			RE WASH AND THEN	I USE WASH'N WIPE TO C AL CONVERSION	CLEAN				• • • •	•	
206		QC7-Inspect Chemical C	onversion Coat	0.00	- 40	\					
206					16 1 1/	011%				- 3	
- QC		Memo		0.00	- 69					•	
Quality Control		***WEAR	LATEX GLOVES WH	EN HANDLING CROSSTU	BE.***					.*	· ·

												DQA:	Date	e:	·-
NCR:	Yes	/ No				WORK ORDER NON-	-COI	VFOR	MANCE / UP	DATE			_		
					+							QA Closed:	Date	e:	
Work Ord	or:					DISPOSITION				AGAINST	DE	PARTMENT	PROCESS		
WOIK OIG	-	· · · · · · · · · · · · · · · · · · ·				Rework	7		Skid-tube	Crosstube			Water Jet	\neg	Engineering
Part I	No.					Scrap	7		Machining	Small Fab		Pro	d. Eng. Coor.	ᅱ	Quality
	•					Use-as-is			noforming	Finishing			e/Packaging	ᅦ	Other
NCR I	۷o.					Work Order Update			Large Fab	Composite			Supplier		
								L						_	
Root						ption of work order update		Initial		tion		Sign &			
Cause		Date	Step	Qty		or Non-conformance	Ct	nief Eng	Desc	ription		Date	Verification	\sqcup	QC Inspector
Doc/Data	Ш						1							ļ	
Equip/Tooling	Ш														
Operator	Ш														
Material												İ		- 1	
Setup							180	,	181						
Other						• 55.				4.					
Process						4 5	- T								
Supplier															
Training															
Unapproved															
							FAUI	T CATE	GORY						,
Landi	ng G	iear				General							_		
		Bending				Bend		Grain				Ovalized	[Pressure/Forced
		Centre No	t Concer	ntric to	o/s	BOM/Route		Hardwa	re			Over/Under	tolerance		Temperature/Cure
		Cracks				Broken/Damaged		Inspect	ion Incomplete			Part Incorre	ct		Weld
	\Box	Crushed/0	Crimped.			Burrs		Instruct	ions Incomplete/	/Unclear		Part Lost/M	ssing		Wrong Stock Pulled
	П	Cuffs				Contamination		Mainte	nance			Part Moved	•		

Mislabeled

Out of Calibration

Out of Sequence

Outside Dimensions

Misread

Offset

Positioned Wrong

Power Loss/Surge

Other

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

Countersink

Cut Too Short

Drill Holes

Drawing

Finish Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Quality Control

August-03-12 1:49:03 PM Item ID: D212-664-201 Accept *N900040100* Setup Start **Revision ID:** Item Name: Crosstube Aft **Start Date:** 03/08/2012 Start Qty: 1.00 **Cust Item ID: Required Date: 24/08/2012** Req'd Qty: 1.00 **Customer:** Reference: Run Date: _____ Approvals: **Process Plan:** Tooling: Date: Stop Date: _____ SPC (Y/N): Date: Sequence ID/ Operation Set Up/ Tool ID Tool # Plan Reject Reject Accept Insp. **Work Center ID** Description **Run Hours Qty** Code Qty Number Stamp 210 Spray Painting per QSI005 4.2 0.00 SprayPaint *210* SprayPaint 0.00 Memo ***WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE.*** Spray Painting 1-Prime inside and outside crosstube as per QSI 005 4.2 2-Paint outside crosstube as per DEO D212-667-241 with White Imron as per OSI 005 4.2 PRIME: 122888 Al 12-10-22 Start Time: 6:30 Fininsh Time: 7:00 Clear 122638 PAINT: 122381 Start Time: 6:30 Finish Time: 7:15 220 QC14- Inspect Spray Paint 0.00 0.00 Memo

Then, Wrap in plastic bag to protect from scratches

									DQA:	Date:	-
NCR: Yes	s / No				WORK ORDER NON-CONFORMANCE / UPDATE					Date:	
Work Order:					DISPOSITION			AGAINST DE	PARTMENT	PROCESS	
Part No.	•				Rework Scrap Use-as-is Work Order Update	1 1	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	1	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root	T			Descri	iption of work order update	Initial	А	ction	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief Eng	Des	cription	Date	Verification	QC Inspector
Doc/Data											
Equip/Tooling											-
Operator											
Material											
Setup											
Other											
Process]				
Supplier	7									1	

FAULT CATEGORY Landing Gear General Pressure/Forced Bend Grain Ovalized Bending BOM/Route Over/Under tolerance Temperature/Cure Hardware Centre Not Concentric to O/S Broken/Damaged Part Incorrect Weld Cracks Inspection Incomplete Crushed/Crimped. Burrs Instructions Incomplete/Unclear Part Lost/Missing Wrong Stock Pulled Maintenance Cuffs Contamination Part Moved Mislabeled Positioned Wrong Heat Treat Countersink Other Power Loss/Surge Inspection Strip in Tube Cut Too Short Misread Offset Ripples in Bend Drill Holes Out of Calibration Torque Waves in Extrusion Drawing Out of Sequence Turning Sequence Finish Wave/Twist in Tube Folio Outside Dimensions

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Training Unapproved

0.00

0.00

250

Packaging

Packaging

Pick Kit

Memo

	NCR: Yes / No	WORK ORDER NON-CONFORMANCE / UPDATE									
			· · · · · · · · · · · · · · · · · · ·	QA Closed:							
	Work Order:	DISPOSITION		AGAINST DEPARTMENT/P							
ł	work Order.	- Rework	Skid-tube	Crosstube							

Work Order Update

General **

Bend

Burrs

BOM/Route

Contamination

Countersink

Cut Too Short Drill Holes

Drawing

Finish

Folio

Broken/Damaged

Description of work order update

or Non-conformance

Scrap

Use-as-is

Initial

Chief Eng

FAULT CATEGORY

Out of Sequence

Outside Dimensions

			DQA:	Dat	e:
IFORM	MANCE / UPI	DATE	•		•
	•		QA Closed:	Dat	e:
		AGAINST DE	PARTMENT/	PROCESS	
ſ	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	4	Water Jet d. Eng. Coor. e/Packaging Supplier	Engineering Quality Other
nitial		tion	Sign &		
ief Eng	Desci	ription	Date	Verification	QC Inspector
T CATE	GORY				
Instruct Mainte Mislabe Misread	ion Incomplete ions Incomplete/lenance eled	Unclear	Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V Power Loss/	ct Issing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other
Offset	- 1 11				
Out of (Calibration				

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Part No.

Date

Qty

Step

Centre Not Concentric to O/S

NCR No.

Landing Gear

Bending

Cracks

Cuffs

Heat Treat

Crushed/Crimped.

Inspection Strip in Tube

Torque Waves in Extrusion

Root

Cause Doc/Data Equip/Tooling Operator Material 1 Setup Other Process Supplier Training Unapproved

Insp.

Stamp

88807 August-03-12 1:49:03 PM Item ID: D212-664-201 Accept *N900040100* Setup Start Revision ID: Item Name: Crosstube Aft Start Qty: 1.00 **Start Date:** 03/08/2012 **Cust Item ID: Required Date: 24/08/2012** Req'd Qty: 1.00 **Customer:** Reference: Run **Process Plan: Approvals:** Date: **Tooling:** Date: Stop QC: Date: SPC (Y/N): Date: Sequence ID/ **Operation** Set Up/ Tool ID Tool # Plan Accept Reject Reject **Work Center ID** Description Code Qty Run Hours **Qty** Number 260 QC4-100% Inspect kits for completeness *260* Memo Quality Control 270 0.00 Packaging *970* Packaging 0.00 Memo Packaging Identify and pack for shipping as per PPP D212-664-201

280

QC21- Final Inspection - Work Order Release 0.00

Quality Control

Memo

0.00

1 / 12/11/02 to 31

			DQA:
NCR:	Yes / No	WORK ORDER NON-CONFORMANCE / UPDATE	

									QA Closed:	Date	:
Work Orde	r:				DISPOSITION			AGAINST DE	PARTMENT	PROCESS	
Part No.					Rework Scrap Use-as-is	The	Skid-tube Machining ermoforming	Crosstube Small Fab Finishing	i	Water Jet d. Eng. Coor. e/Packaging	Engineering Quality Other
NCR No.					Work Order Update		Large Fab	Composite	Rec/3tol	Supplier	J Other
Root				Descri	ption of work order update	Initia	Ac	tion	Sign &		
Cause	Date	Step	Qty	(or Non-conformance	Chief E	ng Desc	ription	Date	Verification	QC Inspector
Doc/Data											
Equip/Tooling											
Operator											
Material						:					
Setup						ř					
Other											
Process											
Supplier											
Training											
Unapproved		<u> </u>	l			<u> </u>					
							TEGORY	<u></u>			
Landin	g Gear				General :			Γ	1	_	–
	Bending				Bend	Grai		ļ	Ovalized	<u> </u>	Pressure/Forced
-	Centre No	ot Concer	ntric to (^{D/S}	BOM/Route	\vdash	ware	<u> </u>	Over/Under	-	Temperature/Cure
	Cracks			_	Broken/Damaged	 	ection Incomplete		Part Incorre	<u> </u>	Weld
]	Crushed/	Crimped.		-	Burrs	\vdash	uctions Incomplete/	Unclear	Part Lost/M	issing [_	Wrong Stock Pulled
	Cuffs				Contamination	\vdash	ntenance	<u> </u>	Part Moved		
	Heat Trea			_	Countersink		abeled	<u> </u>	Positioned V		- 1
ļ.	Inspectio		Tube	<u> </u>	Cut Too Short	Misr			Power Loss/	Surge	Other
	Ripples in			<u> </u>	Drill Holes	Offse					
ļ	Torque W			` _	Drawing	_	of Calibration				
Ļ	Turning S	-		<u> </u>	Finish	\vdash	of Sequence				· · · · · · · · · · · · · · · · · · ·
1	Wave/Tw	ist in Tul	oe 💮		Folio	Outs	ide Dimensions				

Date: _

Picklist Print

August-03-12 1:49:06 PM

Work Order ID: 88807

Parent Item Name: Crosstube Aft

88807

Parent Item:

D212-664-201

D212-664-201

Start Date: 03/08/2012

Required Date: 24/08/2012

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:E04.02.16ReformatK/DS

IPP Rev:F 06-03-29

Remove Coments on Pick List JLM

IPP Rev:G 07-04-30

As per Rev C JLM

IPP Rev:H 08-05-22

up date Qty of rubber cushion DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per K	it Total Qty	Qty Issued	Date Status Issued
D212-664- 201TRNRevC		Manufactured	.– No		B90954	110	Each	0.0000	1		M	12/10/14
*D212-664 Crosstube Turning Detail	4-201TF	RNRevC	` *						**			
D3595-063-530		Manufactured	No			230	Each	186.0000	2	2	/	
D3595-06	33-530								**		MIZ	10 27
				<u>Locati</u>	<u>on</u>	Loc	<u>Oty</u>	Loc Code				
				LG			74					
					79932		13				_	
					82656	•	61				<u> </u>	
				LG051			73					•
					87833		73				_	
				MAT0			39					
					63407		6				<u></u>	
·					67185		6				_	
					70067 72745		18 2					
					75783		7				_	
D2940-1		Manufactured	No		73703	230	Each	17.0000	2	2		
D2940-1	•								**		MILI	0 27
	#			<u>Locati</u>	<u>on</u>	Loc	<u>Oty</u>	Loc Code			1'	•
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					82657		15					*

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							Use-as-is			noforming	Finishing	Rec/Stor	e/Packaging	Other
NCR N	ο.						Work Order Update]		Large Fab	Composite	<u>j</u>	Supplier	
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		Crushed/C	Crimped		ſ		Burrs		Instruct	ions Incomplete/	Unclear	Part Lost/Mi	ssing	Wrong Stock Pulled
		Cuffs					Contamination		Mainte	nance		Part Moved		
		Heat Treat	t				Countersink		Mislabe	eled		Positioned V	Vrong	_
ļ		Inspection	Strip in	Tube			Cut Too Short		Misread	I		Power Loss/	Surge	Other
İ		Ripples in	Bend				Drill Holes		Offset					
		Torque W	aves in E	xtrusio	n		Drawing		Out of 0	Calibration				
		Turning Se	equence				Finish		Out of S	Sequence				
		Wave/Twi	ist in Tub	e			Folio	Г	Outside	Dimensions				

Date:

Picklist Print

August-03-12 1:49:06 PM

Work Order ID: 88807

Parent Item:

MS21920-28

D212-664-201

Parent Item Name: Crosstube Aft

88807

D212-664-201

Start Date: 03/08/2012

Required Date: 24/08/2012

Start Qty: 1.00

Required Qty: 1.00

MS21920-28

Clamp(per MIL-DTL-8783C)

Purchased

No

230

Each

86.0000

**

B#122838

Location	Lo	e Qty
FG		5
105884		5
LG050		55
118713		3
120054		2
122518		50
LG051		26
121440		8
122204		18
	250	Each

Loc Code 15.0000 **

MS21042L6

D3428-1

Purchased

Manufactured

No

No

Location Loc Qty ST042 15 83582 3 85228 12 250 Each

897.0000

Loc Code

Loc Code

Location	Loc Oty
314	600
122441	600
ST300	297
117677	25
118384	3
118927	48
119075	21
120308	200

122441

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Work Orde	er:					DISPOSITION		AGAINST DEPARTMENT/PROCESS							
Part No						Rework Scrap Use-as-is Work Order Update	Machining Small Fab. Thermoforming Finishing			Crosstube Small Fab Finishing Composite	Proc Rec/Stor	Engineering Quality Other			
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		Crushed/	Crimped.			Burrs			ions Incomplete,	/Unclear	Part Lost/M	issing	Wrong Stock Pulled		
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	ь—	Ripples in			<u> </u>	Drill Holes	H	Offset	-						
		Torque W			` _	Drawing	Н		Calibration						
	Н	Turning S	-		 	Finish	-		Sequence						
	1 1	M/ave/Tw	act in Tus	20	1	ILOUG	1 i	If histoide	Dimensions						

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August-03-12 1:49:06 PM

Work Order ID: 88807

Parent Item:

D212-664-201

Parent Item Name: Crosstube Aft

88807 *D212-664-201*

Start Date: 03/08/2012

Required Date: 24/08/2012

Start Qty: 1.00

**

**

0.0000

Required Qty: 1.00

AN960JD616	NAS1149D0663J	Purchased
ANGROJ	DA16	•

Washer

AN6-41A

5mg AN6-40A

Purchased

No

No

250 Each 130.0000

Each

122416

JB 12/10/30

Bolt

Purchased

No

Location Loc Qty Loc Code ST340 50 122416 50 ST342 80 107376 120187 120833 121827 250 93.0000 Each

250

2

Location Loc Qty Loc Code ST340 50 122407 50 ST342 43

2

11

30

1+122407

12/825

107013

120423

121825

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Part No	0				rap	1	Skid-tube Machining	Crosstube Small Fab Finishing		Water Jet d. Eng. Coor. re/Packaging	Engineering Quality Other
NCR No	0			Use-a Work Order Upd			oforming Large Fab	Composite	Rec/Stor	Supplier	Other
Root				Description of work order upo	date	Initial	Act	tion	Sign &		
Cause	Date	Step	Qty	or Non-conformance	c	hief Eng	Desci	ription	Date	Verification	QC Inspector
Doc/Data											
Equip/Tooling											
Operator		1									
Material											

FAULT CATEGORY Landing Gear General Bend Grain Ovalized Pressure/Forced Bending Temperature/Cure BOM/Route Centre Not Concentric to O/S Over/Under tolerance Hardware Broken/Damaged Inspection Incomplete Weld Cracks Part Incorrect Instructions Incomplete/Unclear Crushed/Crimped Burrs Part Lost/Missing Wrong Stock Pulled Maintenance Cuffs Contamination Part Moved Mislabeled Positioned Wrong Heat Treat Countersink Other Power Loss/Surge Inspection Strip in Tube Cut Too Short Misread **Drill Holes** Ripples in Bend Offset Out of Calibration Torque Waves in Extrusion Drawing Out of Sequence Turning Sequence Finish

Outside Dimensions

Wave/Twist in Tube

Folio

Setup
Other
Process
Supplier
Training
Unapproved

DART AEROSPACE LTD	Work Order:	88807
Description: Crosstube High Aft (205/212)	Part Number:	D212-664-201
Inspection Dwg: D212-664-241 Rev: D		Page 1 of 1

Required Dimension	Min	Max
Height	24.17	24.43
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.70
Bending Passes	5	
Crushing		6%

<u>,</u> 40	Crushing 1=5.489		6%	407 -5.523
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	_			45.8
A	_ 53.850	6) \$ 6/	53.78°	13
-		- 107.630"		· · · · · · · · · · · · · · · · · · ·

	Side A	miance	Side B
Bending Passes	(0	8	10
Crushing	7.3%		7.3%
	Comme	nts	
sine A 2 7-37	crushing (2 10 PAS	des
nipple 28 Posses			
c no 12 2 7031	000	0 10 1	الاعلامة

QC15 Inspection	VAS ,
Date	16 17(0/1)

Rev	Date	Change	Revised by	Approved		
Α	07.02.06	New Issue	KJ/JM			
В	07.05.08	Dimensions updated per Dwg rev. C	KJ/JLM			
С	10.04.01	Dwg Rev updated	KJ ,Λ			
D	12.04.16	Added bending, crushing dimensions	KJ 😽	is in the second		

DART SERVICE INSTRUCTION

TO AMEND INSTRUCTIONS FOR CONTINUOUS AIRWORTHINESS ICA-D212-664 Rev. 6 OR LATER

REF. CANADIAN STC: SH01-9 REF. FAA STC: SR01298NY REF. EASA STC: EASA.IM.R.S.01304

PURPOSE:

The supports on the following crosstubes are now installed using Proseal instead of Magnobond:

D212-664-101/-101B @ CHG 005 D412-664-105 @ CHG 002

002

D212-664-201/-201B @ CHG 005 D212-664-207/-207B @ CHG 002

D212-664-107/-107B @ CHG 002

CHANGE:

For the crosstubes listed above, section 32.4 of ICA-D212-664 is amended as follows. Use Figure 1 of this service instruction and Figures 32-2 to 32-9 of ICA-D212-664 for further reference. For crosstubes of an earlier change number, it is recommended that if the supports are removed, the supports should be reinstalled using the procedure listed below.

32.4 SUPPORT INSTALLATION

- 32.4.1 Locate the area on the crosstube for installation of support (see Figure 1 of this service instruction). For D212-664-101/-107/-201/-207 and D412-664-105 crosstubes, the outward face of the support tabs should be 14.0" (355mm) from the crosstube center for 204/205/210/412/UH-1 aircraft. For installation on 214B/B-1 aircraft, the outward face of the support tabs should be 13.75" (349mm). Ensure paint finish of crosstube is intact; touch up as required per Chapter 5 (5.3.9) of ICA-D212-664.
- 32.4.2 If present, remove any paint/primer on bottom of supports. Abrade mating surfaces of support and crosstube with 400-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.3 Ensure a layer of 3M Scotch-Weld 2216 B/A Epoxy Adhesive is on the bottom of the support. If required, either apply or touch-up support to have a 0.03" to 0.05" thick layer of adhesive over the entire mating suface. Allow supports to cure for 24 hours.
- 32.4.4 Abrade mating surfaces of support (after cure) and crosstube with 180-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.5 Apply a 0.04" to 0.07" thick layer of Proseal 890 Class B or AMS-S-8802 Class B sealant underneath applicable support and install support as shown in Figure 1 of this service instruction.
- 32.4.6 Install the clamps opposite to crosstube support as shown in section A-A of Figure 1. Install rubber cushions underneath each clamp around the bottom circumference of the crosstube up to the crosstube centerline. Torque clamps 80-100 in lb (9.0-11.3 Nm). It is acceptable to use smaller or larger sized MS21920-XX clamps than those listed in ICA-D212-664, ensure that after torquing the clamps per this instruction, the nuts are in safety but not bottomed out
- 32.4.7 Prior to installing crosstube on aircraft, allow supports to cure for 72 hours and recheck torque on clamps.

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01
APPBOVED ()
BY: WXX
D. SHEPHERD (DE # 02)
V
DATE:11.07.20
CERT. NO.: SH01-9
ICCHE NO : 2

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В	ADD 3f	M 2216 ADHES	SIVE TO SUPPORT	CP	11.07.15		
Α	NEW IS	SSUE		CP	11.06.14		
REV.			DESCRIPTION	BY	DATE		
DESIGN	l	P	DART AEROS	PACE	LTD		
DRAWN		47	HAWKESBURY, ONTARIO, CANADA				
CHECK	ED	ASS	DRAWING NO.	REV. B			
MFG. AF	PPR.	N/A	DSI 9563	SHEET 1 OF 2			
APPRO'	VED	M	TITLE		SCALE		
DE APP	R.	9/	SUPPORT INSTALLATION CHANGE NTS				
DATE	11.0	7.15	COPYRIGHT @ 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR MY PURPOSE ON COPIED ON COMMUNICATED TO ANY OTHER PERSON WITHOUT WANTER PERMISSION FROM DAYS ARROSPACE LTD.				

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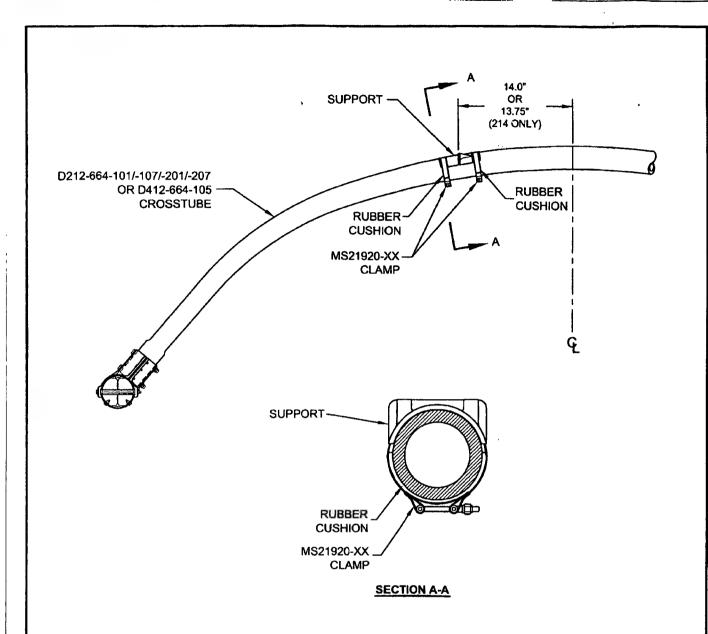


FIGURE 1: SUPPORT INSTALLATION

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

BY: D. SHEPHERD (DE # 02)

DATE: 11.07.20 CERT. NO.: SH01-9 ISSUE NO.: 3

DE APPR. DATE 11.07.15

DESIGN	P	DART AEROSPACE L	TD			
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WRITTEN PERMISSION FROM DART AEROSPACE LTD

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Item	Qty -241	Qty -241B	Part Number	Description
1	Х		D212-664-241	CROSSTUBE ASSEMBLY (205/212 HIGH AFT)
2		Х	D212-664-241B	CROSSTUBE ASSEMBLY (214 HIGH AFT)
3	1	1	D6006-129	CROSSTUBE
4	2	2	D2940-1	SUPPORT
5	4	4	D3595-063-530	RUBBER CUSHION
6	4	4	MS21920-28	CLAMP (OR MS21920-30)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

8

D

С

В

1) MATERIAL: MANUFACTURED FROM D6006-129 FINISHED LENGTH = 124.362±0.020

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

PAINT OUTSIDE PER DART QSI 005 4.2 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.

UNITS: INCHES UNLESS OTHERWISE NOTED

5) BREAK SHARP EDGES: 0.005 TO 0 010 MAX.

IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.

WEIGHT: D212-664-241 = 44 2 lbs (PER IIN-D212-664) D212-664-241B = 44.2 lbs (PER IIN-D212-664)

8) PART IS SYMMETRIC ABOUT CENTERLINE.

9) RUN CUTTER OFF PART BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD BE SMOOTH.

10) BEND PROGRESSIVELY WITH A MINIMUM OF 5 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 5% BASED ON O.D.

11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.

12) INSTALL D2940-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2940-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING

13) INSTALL MS21920-28 CLAMPS (OR -30) WITH D3595-063-530 RUBBER CUSHIONS TO SECURE THE D2940-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE

14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING

SHOPELINY RETURNED ENGINEERING UNCONTROLLED COPY SUBJECT TO AMENDMENT 600 #11-614 WITHOUT NOTICE K 11.07.28 WORK ORDER NO. 88807 MLJ UNDER/REVIEW 12/08/03

ם	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -241B (ZN D4-2, B4-2); REMOVED REF & ADD TOLERANCES (ZN D8-3 & C4-3, C6-3 & A8-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4							
С	REMOVE -1009 ABRASION STRIP, ADD MAGNOBOND PH 0: 6398, CUSHION, REVERSE CLAMPS							
В	ADD H SKIDTI	OLES FOR C	PH	05.02.04				
Α	NEW IS	SSUE	PH	00.12.12				
REV.	[DESCRIPTION	BY	DATE			
DESIGN		PH	DART AEROSP	ACE	LTD			
DRAWN		RF	HAWKESBURY, ONTAR					
CHECK	ĒD	9	DRAWING NO.	REV. D				
MFG. AF	PR.	100	D212-664-241 SHEET 1					
APPRO	/ED	10	TITLE		SCALE			
DE APP	R.	-#-	CROSSTUBE ASSY (205/21	CROSSTUBE ASSY (205/212 HI AFT) NTS				
DATE	09.0	9.30	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS QUENTLED ON THE DOTHESS CONCIDENT THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPED OR COMMUNICATION TO ANY PURPOSE ON WITHOUT WITH THE PURPOSE ON FORD DART AEROPACE CT.)					

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Landi	ing (Gear				General					,		7
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		Cuffs				Contamination		Mainte	enance		Part Moved		
		 				Countersink		Mislabe	eled		Positioned \	Vrong	

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Other

Power Loss/Surge

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

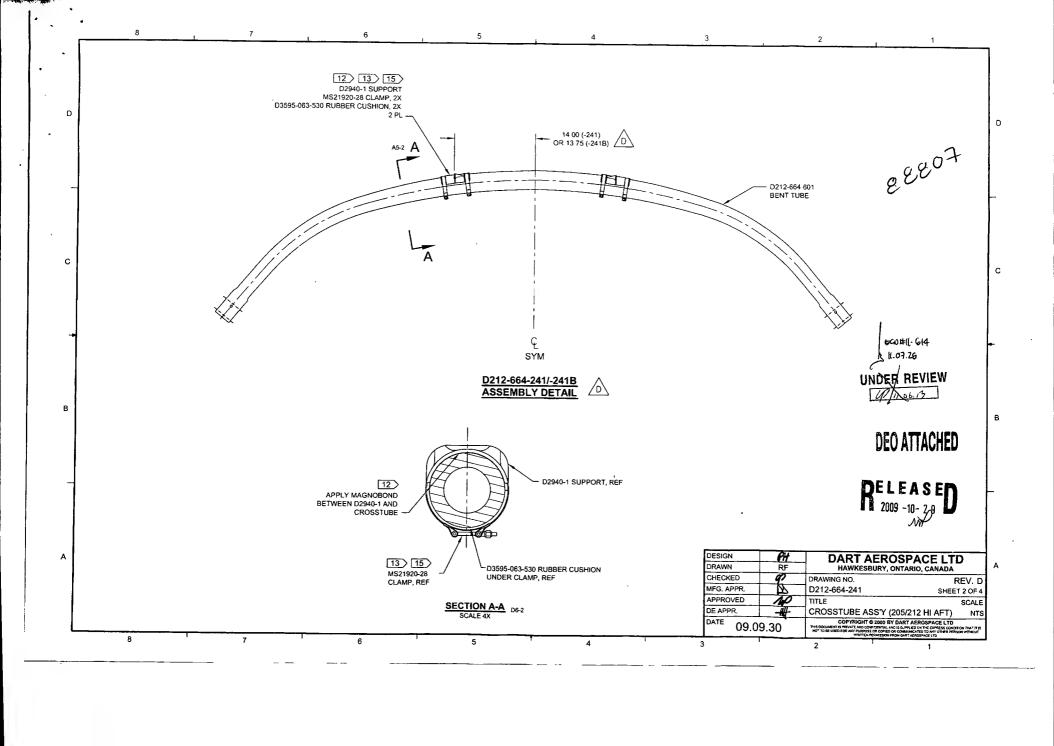
Drill Holes

Drawing

Finish

Folio

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											DQA:	Date:	
NCR:	Yes	/ No				WORK ORDER NON-	100	NFORM	ANCE / UPDAT	E	•		•
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WOIK OIG	CI.					Rework	7		Skid-tube Cr	osstube		Water Jet	Engineering
Part I	۷o.					Scrap	1	•		mall Fab	Pro	d. Eng. Coor.	Quality
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	$\boldsymbol{\vdash}$					BOM/Route		Hardwa			Over/Under		Temperature/Cure
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		Crushed/	Crimped.			Burrs		4	ions Incomplete/Uncle	ar	Part Lost/M	issing	Wrong Stock Pulled
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1	Inspection Strip in Tube					Cut Too Short		Misread	1		Power Loss/	Surge	Other

Offset

Out of Calibration

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Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

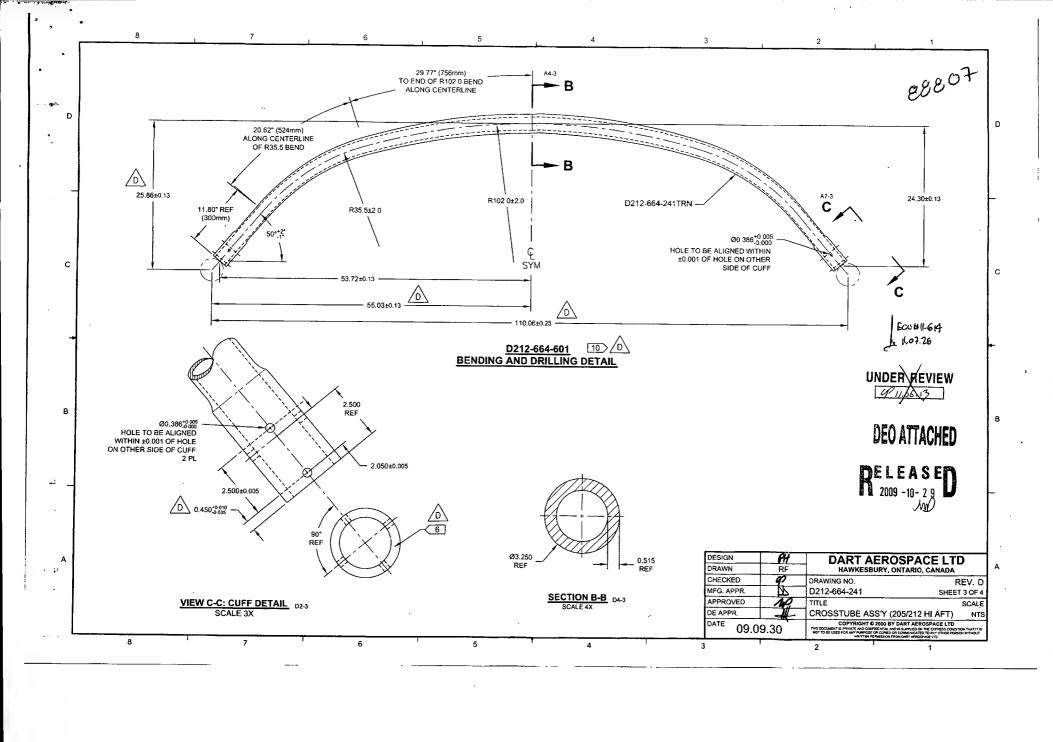
Drill Holes

Drawing

Finish

Folio

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Work Ord	er.					Rework	1		Skid-tube	Crosstube	7		Water Jet		Engineering
Part	No.					Scrap			Machining	Small Fab	1	Pro	d. Eng. Coor.	\dashv	Quality
						Use-as-is			noforming	Finishing	Rec		re/Packaging	ヿ	Other
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		Cracks				Broken/Damaged		Inspect	ion Incomplete		Part In	corre	ct		Weld
		Crushed/	Crimped			Burrs		Instruct	ions Incomplete/	/Unclear	Part Lo	st/M	issing		Wrong Stock Pulled

Maintenance

Out of Calibration Out of Sequence

Outside Dimensions

Mislabeled

Misread

Offset

Power Loss/Surge

Other

Part Moved Positioned Wrong

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Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Inspection Strip in Tube

Torque Waves in Extrusion

Cuffs

Heat Treat

Contamination

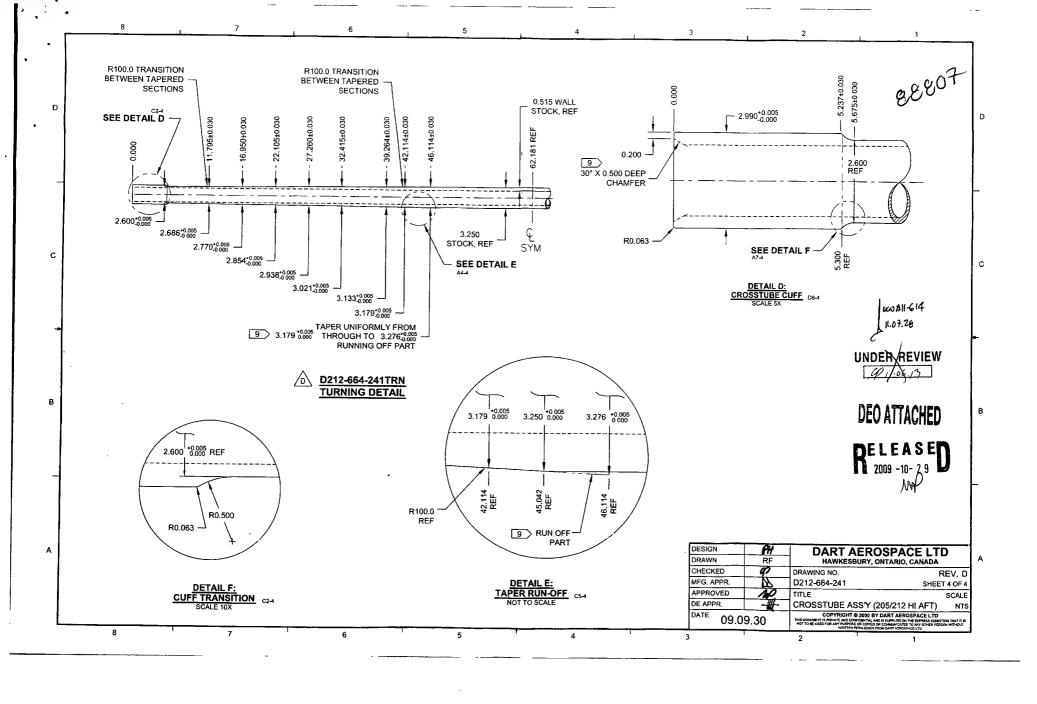
Countersink

Cut Too Short

Drill Holes

Drawing

Finish Folio



NCR:	Yes	/	No

											DQA:	Date	e: _	
NCR:	⁄es	/ No				WORK ORDER NON-O	CONI	FORN	MANCE / UPDATE					•
						·					QA Closed:	Date	e:	
Work Orde	er:					DISPOSITION			AGAINST	DE	PARTMENT	/PROCESS		
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Root				I	Descri	I ption of work order update	Ini	Initial Action			Sign &		ヿ	
Cause		Date	Step	Qty		or Non-conformance	t	ef Eng	Description		Date	Verification	,	QC Inspector
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		Bending			_	Bend	—	Grain			Ovalized	1	-	Pressure/Forced
	_	Centre No	ot Concer	ntric to	o/s	BOM/Route		lardwa		_	Over/Under	⊢	$\overline{}$	Temperature/Cure
	\vdash	Cracks				Broken/Damaged	\vdash	•	ion Incomplete	\perp	Part Incorre	-	—⊀	Weld
	-	Crushed/0	Crimped.			Burrs	_		ions Incomplete/Unclear		Part Lost/Mi			Wrong Stock Pulled
	-	Cuffs			<u> </u>	Contamination		√ainte	enance		Part Moved			
	-	Heat Trea			<u>L</u>	Countersink	\vdash	∕islabe		L	Positioned V			
	_	Inspection		Tube	<u></u>	Cut Too Short	∐ ^	∕lisreac	j		Power Loss/	'Surge		Other
		Ripples in	Bend			Drill Holes	Щ	Offset						
	L	Torque W	aves in E	xtrusio	n L	Drawing	Щ	Out of C	Calibration					
	Turning Sequence					Finish		Out of S	Sequence					

Outside Dimensions

Wave/Twist in Tube

Folio

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DRAWING NO.	TITLE	REV. D	DART AEROSPACE LTD	D.E.O. NO.	SHEET NO.	SCALE
D212-664-241	CROSSTUBE ASSY (20	5/212 HI AFT)	ENGINEERING ORDER	D212-664-241-D-1	SHEET 1 OF 2	NTS
DRAWN K	CHECKED	(N	MFG. APPR.	APPROVED MP	DE APPR.	10.12
DATE 11.04	.07 DATE	11.04.11	DATE /1.04.12	DATE 11/04/12	DATE 11-04.12	

PURPOSE:

ADD AN INSPECTION WINDOW TO UNDERSIDE OF CROSSTUBE.

CHANGE:

NOTES 2 OF SHEET 1 IS AMENDED AS FOLLOWS:

18:

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

MASK UNDERSIDE OF CROSSTUBE AS SHOWN (HATCHED AREA) AND

PAINT OUTSIDE PER DART QSI 005 4.2

REMOVE MASKING AND APPLY CLEAR COAT

WAS:

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

PAINT OUTSIDE PER DART QSI 005 4.2

2011 -04- 18p

UNDER REVIEW

BCV#1-614

2, 11.07.28

68807

											DQA:	Date:	•
NCR:	Yes	/ No				WORK ORDER NON-C	ON	NFORM	MANCE / UPDA	ATE			•
											QA Closed:	Date:	
						DISPOSITION				AGAINST DEF	PARTMENT	PROCESS	
Work Ord	er: -					B	,		ora kara 🗀			Water Jet	,
0	N1 -					Rework			Skid-tube Machining	Crosstube Small Fab	Dro	d. Eng. Coor.	Engineering Quality
Part I	NO					Scrap Use-as-is	1		noforming	Finishing		e/Packaging	Other
NCR I	Nο					Work Order Update		HIGH	· · · · · · · · · · · · · · · · · · ·	Composite	nec/stoi	Supplier	
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Cause		Date	Step	Qty		or Non-conformance	Ch	ief Eng	Descrip	tion	Date	Verification	QC Inspector
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Equip/Tooling	Ш												
Operator							1						
Material	Ш			ĺ									
Setup	Ц						ļ						
Other	Ш												
Process													
Supplier	Ш									•		•	
Training													
Unapproved													
						F	AUL	T CATE	GORY				
Landi					·	General	_				1		7
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	-	Centre No	ot Concer	ntric to	o/s	BOM/Route	-	Hardwa		ļ	Over/Under		Temperature/Cure
	\vdash	Cracks			L	Broken/Damaged	-		ion Incomplete		Part Incorre	 	Weld
	\vdash	Crushed/0	Crimped			Burrs	_	ŧ	ions Incomplete/Un		Part Lost/Mi	issing	Wrong Stock Pulled
	Н	Cuffs			<u></u>	Contamination		Mainte) 	Part Moved		
		Heat Trea	t		1	Countersink		Mislabe	eled		Positioned V	Vrong	

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Power Loss/Surge

Other

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

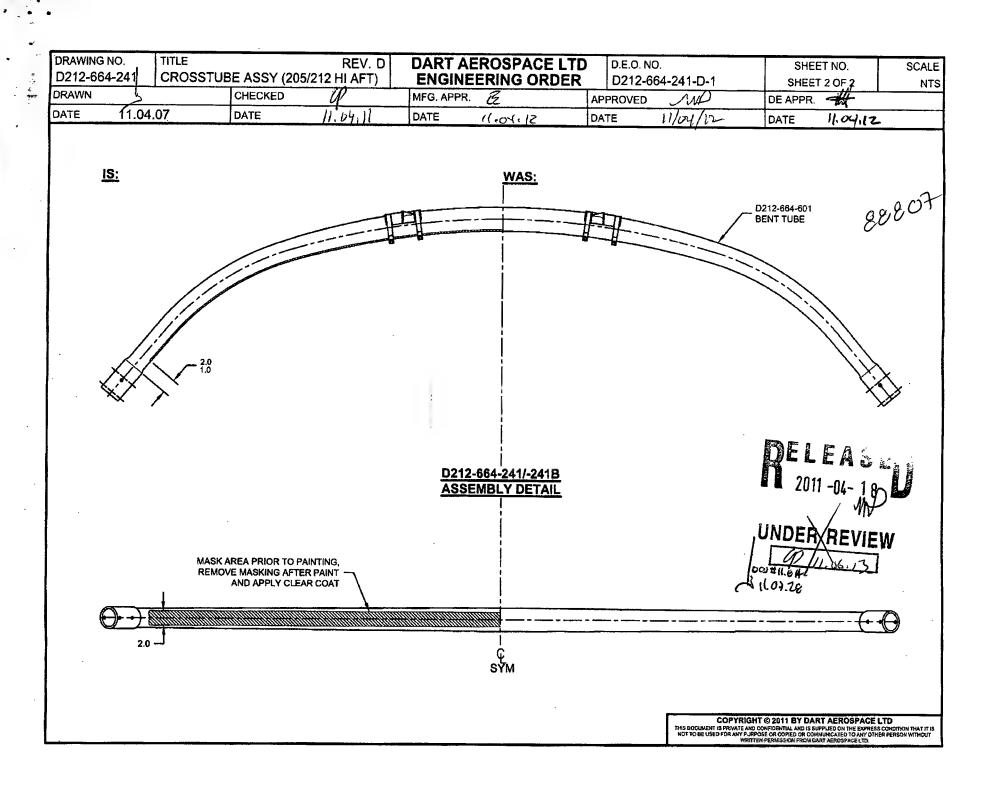
Drill Holes

Drawing

Finish

Folio

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									•		DQA:	Date	•
NCR:	/es	/ No				WORK ORDER N	ION-CO	VFORM	MANCE / UP	DATE		····	•
											QA Closed:	Date	
Nork Orde	···					DISPOSITION	V			AGAINST DE	PARTMENT	/PROCESS	
WOIK OIGE	=1.					Rew	ork 🗍		Skid-tube	Crosstube	1	Water Jet	Engineering
Part N	No.						rap		Machining	Small Fab	Pro	d. Eng. Coor.	Quality
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		Inspection		Tube	<u> </u> -	Cut Too Short	F	Misread		<u> </u>	Power Loss/	_	Other
		Ripples in			•	Drill Holes		Offset		<u> </u>		~ <u>C</u>	· L · · · · · · · · · · · · · · · · · ·
		Torque W		xtrusio	n	Drawing		Out of	Calibration				
		Turning S	equence			Finish		Out of Sequence					
	Wave/Twist in Tube					Folio		Outside Dimensions					·

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DRAWING NO.	TITLE	REV. D	DART AE	ROSPACE LTD	D.E.O. NO.		SHEET NO.	SCALE
D212-664-241	CROSSTUBE ASS'Y (2	05/212 HI AFT)	ENGINE	ERING ORDER	D212-664-241-I	0-2	SHEET 1 OF 1	NTS
DRAWN 97	CHECKED	A>S	MFG. APPR.	B	APPROVED A	Q	DE APPR.	**************************************
DATE 11.07	.15 DATE /	.07.20	DATE	11.07.21	DATE 11/27	7	DATE 11-07.2	1

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

item	Qty -241	Qty -241B	Part Number	Description
7	A/R	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

L				
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023
				ADHESIVE (TEXTRON/BELL SPEC. 299-947-100,
				TYPE II, CLASS 2 ADHESIVE)

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) TO INSTALL D2940-1 SUPPORT: ABRADE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04° TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

WAS:

- 12) INSTALL D2940-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2940-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.



THIS COCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS

NCR:	Yes	/	No

DQA: Date:

NCR: Y													
											QA Closed:	Date:	
Work Orde	er:					DISPOSITIO	ON			AGAINST DE	PARTMENT	PROCESS	985
Part N	•					i i	work Scrap		Skid-tube Machining	Crosstube Small Fab	Pro	Water Jet d. Eng. Coor	Engineering Quality ,
NCR N	lo.			- 337		Use Work Order Up	-as-is odate	Therr	noforming Large Fab	Finishing Composite	Rec/Stor	e/Packaging * Supplier	Other
Root	Ţ				Descr	ription of work order u	ıpdate	Initial	A	ction	Sign &		
Cause		Date	Step	Qty		or Non-conformance		Chief Eng	Des	cription	Date	Verification	QC Inspector
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		Bending			_	Bend	-34	Grain		_	Ovalized		Pressure/Forced
		Centre No	t Concer	ntric to	o/s	BOM/Route	, [Hardw			Over/Under	-	Temperature/Cure
		Cracks			<u> </u>	Broken/Damaged			ion Incomplete	_	Part Incorre		Weld
		Crushed/0	Crimped.			Burrs	1		tions Incomplete	/Unclear	Part Lost/Mi	ssing	Wrong Stock Pulled
	\vdash	Cuffs			L	Contamination		⊣	enance		Part Moved		
	Heat Treat Countersink			<u> </u>	Mislab	eled	ļ	Positioned V		7			
×	Inspection Strip in Tube Cut Too Short		<u> </u>	Misrea	d		Power Loss/	Surge	Other				
	Ripples in Bend Drill Holes					Offset							
Torque Waves in Extrusion Drawing					L	Out of Calibration							
Turning Sequence Finish						Out of Sequence							
Wave/Twist in Tube						Folio	Outside Dimensions						

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12.2.21

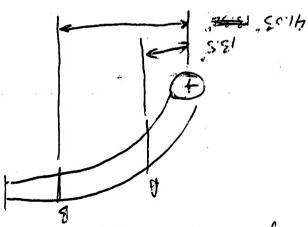
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The will fall of support before area of 8% CRUSHING AT END AT BEND

22'9 = 1- 59'11/72'h1 = SW

d 78 hl = h82 h ~ 2/2662 × 5°1h » d = 1/7W = d & fl

4" 682'h = I "172'Z = (11 M' 52'S = (10 Sg fully) "1" 966' = (846'Z+265'Z)/(845'Z-766'Z) ballyon "1" 256'Z=7(0 M'845'Z = 1(10) St fully



Acceptability of 8% cresting

(RUSHING OF DILL-664-20)

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